

REMARKS

This is a Request for Continued Examination. Claims 1, 2, 5, 6, 10, 12, 20, 22, 24 through 33 are currently in the case. Claim 4 has been withdrawn without prejudice to file a divisional application, based on an earlier Restriction requirement. Claims 3, 7 through 9, 11, 13 through 19, 21 and 23 have been canceled, and Claims 26 through 33 are new.

Claims 1 through 3, and 5 through 14, 24 and 25 have been finally rejected, and Claims 15 through 23 have been finally objected to. The final rejection of Claims 1 through 3, and 5 through 14, 24 and 25, as well as the final objection to Claims 15 through 23 are respectfully traversed.

The rejection of Claims 1 through 3, and 5 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,496,785 to Abler has been made final. In making the rejection, the Examiner stated “[r]egarding claim 1, Abler ‘785 discloses a dual impregnated activated carbon suitable for filtering contaminants (abstract) comprising activated carbon and group 6-12 salts including copper chloride (see column 3, line 56). Regarding claim 2, Abler ‘785 disclose wood, coal, coconut, and organic polymers (see column 2, lines 19-21). Regarding claim 3, Abler ‘785 disclose 1.5-40% metals (see column 3, lines 35-36 and 41-42). Regarding claim 5, Abler ‘785 discloses potassium permanganate also may be included (see column 1, lines 30-32).

Responsive to the final rejection of Claims 1 through 3, and 5 under 35 U.S.C. § 102(b), Abler fails to meet the standard required of an anticipatory reference. Abler ‘785 fails to disclose ‘an adsorption powder comprising from about 1 to about 10 weight percent of copper chloride’, useful for removing organic compounds and metals from vaporous streams. Abler discloses removal of gaseous, inorganic contaminants, *i.e.* HCN, SO<sub>2</sub>, hydrogen halides, hydrogen sulfide, etc. from air (column 4, lines 29 through 37) and is suitable for use in a respirator. The reference further requires a “dual-

impregnated activated carbon” (see column 3, line 1) with a Group 1 metal carbonate salt, and Group 6 to 12 metal salt. To make out a *prima facie* case of anticipation, the cited reference must contain each and every element of the claims under examination (see *Radio Steel Mfg. Co v. MTD Products, Inc.*, 221 USPQ 657, 661 (Fed. Cir. 984)). Able fails to anticipate the composition of the instant invention. The reference fails to anticipate the instant use of the claimed invention, i.e. adsorption of organic compounds and vaporous metals, since the reference suggests using the adsorption composition for inorganic gaseous contaminants such as HCN, hydrogen halides, and hydrogen sulfide. Further, Abler requires the presence of an additional component (a Group 1 metal carbonate salt) that is not recited in the instant Claim 1. While the Markush grouping of Claim 2 reciting the various carbon-based powders might be obvious, it is respectfully submitted that the elements of Claim 1 are not anticipated, and that Claim 1 must be anticipated for the rejection of Claim 2 to stand. The anticipatory rejection of Claim 3 is obviated by the cancellation of the claim. Responsive to the anticipatory rejection of Claim 5 over Abler, the cited reference requires a Group 1, metal carbonate salt. The only Group 1 metal recited in Claim 5 is potassium, and the potassium salts thereof are potassium permanganate and potassium iodide (neither of which are anticipated by Abler). It is respectfully submitted that Abler fails to anticipate any of the present Claims 1 through 3, and 5.

The Examiner argues that “[r]egarding claim 3, Abler ‘785 discloses 1.5-40% metals (see column 3, lines 35-36 and 41-42).” However, the 1.5 to 40% metals are the combination of Group 1 and Group 6 metals combined. The instantly claimed invention only utilized a Group 6 transition metal (copper), and Abler discloses a Group 6 metal “range of 1 to 10 weight percent” (see column 3, lines 4 through 5). Clearly, neither Claim 1 nor Claims 2, 3 or 5 are anticipated by Abler.

The Examiner’s rationale for maintaining the rejection under § 102(b) is difficult to discern since he has not established a *prima facie* case of anticipation by showing that

each and every element of the instant Claim 1 are recited in Abler. Abler fails to establish the same components of the adsorption composition, the same ranges of components, or the same use. At column 2, lines 42 through 65, Abler discloses a 'long laundry list' of Group 6 to 12 metal salts. This listing is believed to be pure speculation since the reference fails to provide any examples or claims to copper chloride. If copper chloride, in fact, was a useful element of Abler, at least 1 example and perhaps 1 claim would have been drafted to include the metal salt.

Nevertheless, Claim 1 has been amended to recite a cupric chloride range of "from at least about 10.1 to about 45 weight percent", and Claim 3 has been canceled. Claim 1, from which Claims 2 and 5 are dependent, has been amended to recite a range of cupric chloride outside the limitations of Abler. Abler disclosed a copper chloride range of "1 to 10 weight percent" (column 3, lines 3 through 7). This amendment to Claim 1 is believed to overcome the § 102 (b) anticipation rejection and place Claims 1, 2 and 5 in a condition for allowance.

Claims 6 through 8, and 24 and 25 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Abler '785 in view of Kienow *et al.* '956. In making the rejection, the Examiner stated that "Abler discloses carbon/metal mixtures of 1.5-40% metals (see column 3, lines 35-36 and 41-42). Abler fails to disclose about 10-70% calcium hydroxide. It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the 0-70% calcium hydroxide in the activated carbon contaminant adsorbent of Abler because Kienow discloses his calcium hydroxide in an activated coke (abstract) contaminant cleaning adsorbent (see column 1, lines 15-35) to be useful in essentially all exhaust gas cleaning systems as reactive calcium compounds (see column 3, lines 61-67 and column 4, lines 1-9). Regarding claims 24-25, Kienow '956 discloses up to 40 percent activated cokes (abstract) and 0-70% calcium hydroxide (see Table)."

Responsive to the rejection of Claims 6 through 8, 24 and 25 under § 103(a) over Abler '785 in view of Kienow *et al.* '956, Abler fails to suggest an adsorption composition containing 'from at least about 10.1 to about 45 weight percent of cupric chloride' and a carbon-based material suitable for the removal of metals (e.g. mercury) and organic compounds from vaporous streams as presently recited in Claim 1. Kienow fails to suggest the use of cupric chloride and a carbon-based material for the removal of metal (e.g. mercury) from gaseous streams. Kienow suggest the use of a carbon compound and calcium hydroxide for precipitation of acid pollutant gases, such as HCl, SO<sub>2</sub>, HF, etc. (column 1, lines 35 through 39). There is no suggestion in either reference that would motivate a person of ordinary skill in the art to combine the references as the Examiner has done.

One of ordinary skill in the art would not have combined the references as the Examiner has done to make out the rejection. While Abler and Kienow teach adsorption compositions suitable for removing inorganic impurities and exhaust emissions from gaseous streams, neither reference teach or suggest the removal of organic compounds, *i.e.* furans and dioxins, or metals (e.g. mercury) from gaseous streams. Abler teaches a composition of activated carbon, Group 1 carbonate salts and Group 6 metals, and Kienow suggests a composition of activated carbon and calcium hydroxide. If anything, the Examiner has combined the references based upon an adsorption composition that utilized activated carbon for removing inorganic impurities from gaseous streams. There must be some suggestion of the use of the adsorption compositions for removing organic compounds and metals for there to be sufficient motivation to apply the references to the presently claimed invention. Both references teach the use of the adsorption compositions for removing inorganic compounds, not organic compounds and metals. Significantly, Kienow teaches away from the instantly claimed invention by reciting "pre-cleaned exhaust gas will still contain organic compounds and heavy metals" (column 4, lines 42 through 44), and "the pre-cleaned exhaust gas typically still contains ... organic compounds and heavy metals" (column 5, lines 35 through 39). Nevertheless,

the motivation for one of ordinary skill to combine the references has to be more than the common thread of 'an activated carbon adsorption composition for the removal of inorganic components from gaseous streams'. There also must be a similarity in the use of the cited references and the claimed invention other than adsorption compositions. It is submitted that Abler's teaching activated carbon and copper chloride for removing inorganic impurities from air, and Kienow's suggestion of activated carbon and calcium hydroxide for removing inorganic impurities from exhaust gas streams is insufficient motivation to make out a *prima facie* obviousness-type rejection of a claim to 'an adsorption composition of activated carbon, cupric chloride, and calcium hydroxide for removing of heavy metals and organic compounds from vaporous streams'. A person of ordinary skill in the art would have not been motivated, at the time the instant claimed invention was made, to combine the referenced to make a *prima facie* of obviousness as the Examiner has done. Even with the combination of the cited references, there is still no teaching of the instantly claimed composition and its intended use.

In maintaining the § 103(a) rejection, the Examiner argued that "Kienow is not relied upon for the use of cupric chloride, which is disclosed in Abler. One cannot show non-obviousness by attacking references individually where the rejections [sic] are based on combinations of references." He also states that "[f]urther, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art." Then as motivation, the Examiner states that "... it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the 0-70% [sic] calcium hydroxide in the activated carbon contaminant adsorbent of Abler because Kienow discloses his calcium hydroxide in the an activated coke (abstract) contaminant cleaning adsorbent ... to be useful in essentially all exhaust gas cleaning systems as reactive calcium compounds ... ."

It should be noted that the present invention is not directed to “exhaust gas cleaning systems”. Dioxins, furans (organic compounds), and mercury (heavy metal) are not considered by one of ordinary skill in the art to be components of “exhaust gases”, and the Examiner has not supported his contention of the level of ordinary skill in the art with an affidavit stating ‘that exhaust gas cleaning systems encompass the removal of organic compounds and vaporous heavy metals’. It is respectfully submitted that the motivation of adsorption compositions utilizing carbon for cleaning inorganic impurities from gas streams is insufficient to make out a *prima facie* case of obviousness of the claimed invention.

Claims 9 through 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Abler ‘785 in combination with Kienow ‘956, and in view of U.S. Patent No. 5,352,647 to Suchenwirth. In making the rejection, the Examiner stated “[c]laims 9-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Abler ‘785 as applied to claim 5 above, and further in view of Kienow ‘956 and Suchenwirth US 5,352,647 ... Suchenwirth ‘647 discloses 0.5-5% sulfur (see column 5, lines 5-15). It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the 0.5-5% sulfur of Suchenwirth in the activated carbon exhaust gas contaminant adsorbent of Abler because Suchenwirth discloses his sulfur in a composition for separating noxious substances from exhaust gases (title, abstract) to obtain the essential advantage that they can be dissolved in water during the slaking process or applied in finely dispersed form on the calcium hydroxide subsequent to the slaking process, to facilitate the application of surface-active substances, and to considerably promote reactions with heavy metals and VOCs with the fine distribution (see column 2, lines 28-36).”

Suchenwirth teaches ‘a composition for removing volatile organic pollutants and heavy metals from exhaust gases’ using a composition of activated charcoal, calcium hydroxide, and sulfur, wherein the process of removal occurs at a temperature of about

190° C. Abler suggests the removal of HCN, hydrogen halide gases of HF, HCl, etc. from exhaust streams (at exhaust gas temperatures) using Group 1 metal carbonate salts, Group 6 metals, and activated carbon. Kienow teaches a composition of activated coke and calcium hydroxide for cleaning exhaust gases (at exhaust gas temperatures) containing of HF, HCl, SO<sub>2</sub>, and SO<sub>3</sub>. One of ordinary skill in the art would have not been motivated by the individual teachings in each reference to combine them as the Examiner has done to support a *prime facie* case of obviousness. Abler and Kienow suggest the use of the activated carbon compositions for removal of inorganic contaminants from exhaust gases, and Suchenwirth suggest the use of activated carbon for the removal of heavy metals, e.g. mercury, and organic pollutants at high temperatures. Abler and Kienow fail to teach or suggest use of their compositions for adsorption of heavy metals and organic pollutants, while Suchenwirth suggests the use of his composition for the adsorption of heavy metal and organic pollutants. One of ordinary skill in the art would know that the process of Suchenwirth occurs at a much higher temperature than the processes of Abler and Kienow. While all 3 cited references teach the use of a carbon-based adsorption composition, there is no motivation for combining Abler and Kienow with Suchenwirth, as discussed herein above, since the materials adsorbed by the process of Abler and Kienow (inorganic impurities) are quite different from the materials adsorbed by the process of Suchenwirth (organic compounds and vaporous metals). Therefore, Suchenwirth can not repair the motivation that is not suggested by the combination of Abler and Kienow. The only motivation for combining all 3 references is, perhaps, the use of a carbon-based, adsorption composition. Abler teaches the use of a composition containing activated carbon and a Group 6 metal salt for adsorption of HCl, HCN, and SO<sub>2</sub>. While the Kienow and Suchenwirth compositions both contain activated carbon and calcium hydroxide, their uses are quite different. Kienow suggest the adsorption of inorganic pollutants, e.g. HF, HCl, SO<sub>2</sub>, and SO<sub>3</sub> from chimney gases (column 1, line 31), and Suchenwirth teaches the adsorption of heavy metals and organic pollutants at high temperatures (about 190° C). One of ordinary skill in the art would be motivated by the dissimilar uses of the compositions to combine the

same. It is respectfully submitted that the Examiner has used 20/20 hindsight of the use 'activated carbon' in each adsorption composition and their use of removal of 'exhaust pollutants' to combine the references even though the pollutants are different (inorganic compounds versus organic compounds). Otherwise, the function of the compositions are quite different, and one of ordinary skill in the art would not be motivated to combine the references as the Examiner has done to make out the § 103(a) rejections.

The Examiner stated that "Claims 15-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." We agree with the Examiner's assessment of Claims 15 through 23. Claims 15 through 19, 21 and 23 have been canceled, and new Claims 26 through 33 are presented herein for the Examiner's consideration. These claims are Claims 15 through 23 re-written in independent format. No new matter has been added to the case by these amendments. Antecedent basis for the amendments can be found in Tables 1 through 4 and Claims 15 through 23. It is the undersigned representative's belief that Claims 1, 2, 5, 6, 10, 12, 20, 22 and 24 through 33, all the claims in the case, are allowable in view of the present amendments and arguments made in traversing the prior art relied upon by the Examiner to make the rejections.

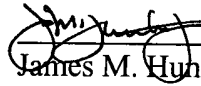


CONCLUSION

Entry of the amendments herein, reconsideration and allowance of Claims 1, 2, 5, 6, 10, 12, 20, 22, and 24 through 33, all the claims in the case, are respectfully requested. The Examiner is hereby authorized to deduct an additional fee of \$504.00 for the new independent claims presented herein from Deposit Account No. 13-2755. If any additional fees are due, the Examiner is authorized to deduct the same from Deposit Account No. 13-2755.

Should the Examiner have any questions or wish to discuss this case, he is requested to contact Applicants' undersigned representative at his earliest convenience.

Respectfully submitted,

  
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